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(54) EXTRACTION AND PURIFICATION OF PLASMID DNA

(57)Abstract:

PROBLEM TO BE SOLVED: To purify the subject DNA in a high purity for a short time by adding a cytolytic liquid containing a chaotropic substance, an organic solvent and a nucleic acid-bonding solid-phase carrier to a microorganism or a cell containing a plasmid DNA, washing the resultant solid-phase carrier adsorbing the plasmid DNA thereon and then treating the washed solid-phase carrier with an eluent.

SOLUTION: A cytolytic liquid at pH 3-6 containing a chaotropic substance comprising a guanidine thiocyanate and sodium acetate-hydrochloric acid, etc., an extracting liquid comprising an organic solvent, etc., such as a buffer solution-saturated phenol and a nucleic acid-bonding solid-phase carrier comprising particles, etc., containing a superparamagnetic metallic oxide are added, mixed or brought into contact with a microorganism or a cell holding a plasmid DNA to adsorb the plasmid DNA on the solid-phase carrier. The solid-phase carrier adsorbing the plasmid DNA thereon is then washed with a wash liquid and the plasmid DNA is eluted from the washed solid-phase carrier with an eluent to thereby extract and purify the plasmid DNA from the microorganism or cell in high purity for a short time without requiring complicated operations.

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